Glencoe McGraw Hill
Geometry, Geometry

Degree of Evidence regarding the Standards for Mathematical Practice:

Minimal Evidence

Summary of evidence:

1. **Make sense of problems and persevere in solving them**. In the chapters reviewed, there are some opportunities for students to explain and describe in the practice problems, but most of the "H.O.T. Problems" for each section and could be easily skipped. There are very limited open-ended questions. The open-ended questions are mainly found in the "H.O.T. Problems" for each section and could be easily skipped. Students are presented with exactly how to solve particular problems and are asked to recreate the process in the practice problems. In the chapters reviewed, no opportunity for reflection on answers is inherent in the student resource or mentioned in the teacher resource. Connections among tables, graphs, equations, and situations are not stressed. There are problems labeled "Multiple Representations" in each section as well as in the labs, but it would be up to the teacher to incorporate these opportunities since they could be easily overlooked (e.g. p.576 #61). Overall, there are infrequent and limited open-ended problem-solving opportunities for students to tackle on their own. There are very limited opportunities for students to create a problem-solving plan of their own and to follow through or determine reasonableness.
2. **Reason abstractly and quantitatively**. In the chapters reviewed, there are some application problems ingrained in each unit, but they are mainly in the form of a simple word problem with no need for the student to analyze the information. Some chapters have more application problems than others, like seen in Section 8-5, which covers angles of elevation and depression. In the chapters reviewed, students are rarely asked to create a model for an application. The majority of the time students are already presented with a model, such as a net, already created and asked to answer questions based on it (e.g. p.846 activity). There are some cases of activities using models (e.g. pp. 837-838), but it would be up to the teacher to implement the use of the model. Some additional modeling can be found in the separate geometry labs (e.g. p.578). There is not much connection between applications and representations using symbols. Often, symbols just appear in formulas. Overall, there are limited application problems spread throughout the chapter. Most application problems are straight-forward and not often challenging. Most questions are solved by applying an algorithm that the students have not generalized or formed on their own.
3. **Construct viable arguments and critique the reasoning of others**. In the chapters reviewed, there are limited opportunities for students to explain their reasoning. Problems are typically focused only on arriving at a numerical answer. There are "H.O.T. Problems" in each section, and they usually have students justify their thinking. These problems could be easily skipped, though, and it would be up to the teacher to implement. In the chapters reviewed, there is little mention of students sharing their methods with the class. The teacher could incorporate the labs to include group class discussion, since it is not inherent in the text. Explanations and discussion of justification are very limited in the chapters reviewed. There are limited opportunities for students to justify their thinking, and when they do exist, they may be skipped due to infrequency or due to the separation of these kinds of problems in to a different section. Opportunities for critique and discussion will relies on teacher facilitation of the activities.
4. **Model with Mathematics**. In the chapters reviewed, there are few applications where students are asked to create mathematical models aside from the separate labs. In the application

questions, answers are in context. There is no explicit connection among tables, graphs, equations, and situations in the chapters reviewed. Students have some opportunity to work with tables and equations in the labs, but these activities could be skipped, because they are not ingrained in the text (e.g. p. 578). Overall, there are some opportunities for students to create mathematical models, but these opportunities depend on teacher incorporation of the labs in each chapter.

5. **Use appropriate tools strategically.** Geometric constructions are presented along the way but seem to be neglected as a tool for making sense of other mathematical concepts and truths. Students seem to only be asked to use tools in the labs for each chapter, aside from the constructions incorporated at various times in the text. There is reference to the use of graphing calculators, but mainly in the labs or in the occasional "Multiple Representation" problems in the practice problems (e.g. p.945 #19c). Technology use is inherent in the labs in each chapter. In the chapters reviewed, there is little evidence of evaluating the strength and weaknesses of tools.
6. **Attend to precision.** Examples use proper notation and are precise. In the chapters reviewed, examples of precise communication are not present. Students complete error analysis in various practice problems in order to determine precise communication. There is attention to precision in the examples, but no discussion for students to tackle. The fostering precise communication would rely on teacher facilitation of student activities.
7. **Look for and make use of structure**. In the chapters reviewed, there are few opportunities for students to look at examples and then generalize aside from the labs or the occasional practice problem. The majority of the time, the rule is given with examples following (e.g. p.547 with the Pythagorean Theorem). Some activities explore patterns to create generalizations. Most of the time, students form generalizations by completing the labs that are treated separate from the chapter sections. These opportunities could be easily overlooked or skipped altogether. There is limited connection to prior learning. There are some opportunities for students to generalize their thoughts in the labs and some of the practice problems, but this is primarily only after the text has told them the algorithm or rule without any discovery.
8. **Look for and express regularity in repeated reasoning.** In the chapters reviewed, students are rarely asked to look at patterns (aside from the labs). The activities in each section lead students to the desired generalizations without any exploration. There are some opportunities for students to generalize a pattern to determine a rule. Opportunities for generalizing are present in the labs in each chapter, which will depend on the teacher incorporating these labs in to the course.